GENERA OF PSOCOPTERA NEW TO MEXICO[1]

Alfonso Neri García Aldrete[2]

ABSTRACT: Descriptions of one new species each, in the genera *Nepticulomima* and *Seopsocus*, and a record of *Nadleria mariateresae* are here presented. The specimens studied were collected by canopy fogging in the Lacandonian forest, Chiapas, México. These three genera of psocids had not previously been recorded in México. The types are deposited in the National Insect Collection, Instituto de Biología, UNAM., México City.

RESUMEN: Se presentan en éste trabajo descripciones de especies de los géneros *Nepticulomima* y *Seopsocus*, y un registro de *Nadleria mariateresae*. Los ejemplares estudiados fueron colectados mediante nebulización insecticida del dosel de árboles en la selva Lacandona, en Chiapas. Los tres géneros de psócidos no habían sido registrados previamente en México. Los tipos de las especies descritas están depositados en la Colección Nacional de Insectos, Instituto de Biología, UNAM., México, D. F.

The psocid fauna of Mexico consists of 646 species, in 97 genera and 31 families (Mockford & García Aldrete 1996). This paper documents the presence in Mexico of three additional genera, previously unrecorded in the country: *Nepticulomima, Seopsocus* and *Nadleria*. Species of the first one are diverse in the Oriental-West Pacific Region, where 14 species have been recorded; there are three Neotropical species (two Brazilian and one in the Galapagos Archipelago); two Australian and one Ethiopian; besides, one undescribed species each are known in peninsular Florida, Dominican Republic, Nicaragua and Ecuador. All the described species of *Seopsocus* are Brazilian, although several undescribed species are known in the Tambopata Reserved Zone, in the Peruvian Amazonia (Smithsonian Institution Canopy Fogging Project, conducted by Terry Erwin; unpublished results), and in Amazonian Ecuador, collected also by Terry Erwin. The four described species of *Nadleria* occur in the Amazon Basin, one of them extending its range to Trinidad (García Aldrete 1996); one additional undescribed species occurs in Amazonian Ecuador (unpublished results). Presently then, 100 of the 277 described genera of Psocoptera (36%), and 649 species (ca. 8% of the world psocid fauna) occur in Mexico, a fact that gives another indication of the biological megadiversity of the country.

In the descriptions presented below, color was recorded by observation of the specimen with a stereoscopic microscope at 100X, under direct yellow light.

Measurements, given in microns, are the usual, (cf. García Aldrete 1990, 1999) and were taken on parts mounted on slides in Euparal, with a filar micrometer whose measuring unit is 1.53 microns for wings and 0.53 microns

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[2] Instituto de Biología, UNAM, Departamento de Zoología, Apartado Postal 70-153, 04510 México, D.F. México. e-mail: anga@servidor.unam.mx

for other parts. The types of the species here described are deposited in the National Insect Collection, Zoology Department, Instituto de Biología, UNAM, México City.

Lepidopsocidae

Nepticulomima campechensis, NEW SPECIES (♀)

(Figs. 1-7)

Female. Color (in 80% alcohol). Reddish brown. Compound eyes black, ocelli hyaline, with ochre contripetal crescents. On each genae, a reddish brown band from lower rim of compound eye to lower gena, next to antennal fossae, without enclosing them. A pale slender band across frons, bordered by ochre pigmented spots, having 3rd ocellus as center. Antennae and maxillary palps pale brown. Legs brown, femora with reddish brown area on anterior margin and apex; tibiae with dark brown bands near proximal and distal apices. Fore wing pale brown, clothed with brown scales. Hind wing hyaline, slightly fumose.

Morphology. Lacinial apex tridentate (Fig. 3). Fore and hind wing venation (Fig. 2). First valvulae of gonapophyses short, slender, slightly dilated distally (Fig. 4). Third valvulae elongate, stout, wide in the middle, setose as illustrated (Fig. 4). Sclerite of spermathecal duct (Fig. 5) arched, with arms more pigmented than apex. Paraprocts (Fig. 6), elongate, slender, setose, with seven trichobothria on sensory field, one without basal rosette. Epiproct (Fig.7), with base wide and sides converging to round apex; setal field as illustrated.

Measurements. FW: 2344, HW: 1893, F: 641, T: 1113, t_1: 413, t_2: 72, t_3: 66, ctt_1: 18, Mx4: 126, f_1: 111, f_2: 106, f_3: 103, f_4: 109, f_5: 92, f_6: 64, f_7: 66, f_8: 70, IO: 39, D: 318, d: 165, IO/D: 1.23, PO: 0.52.

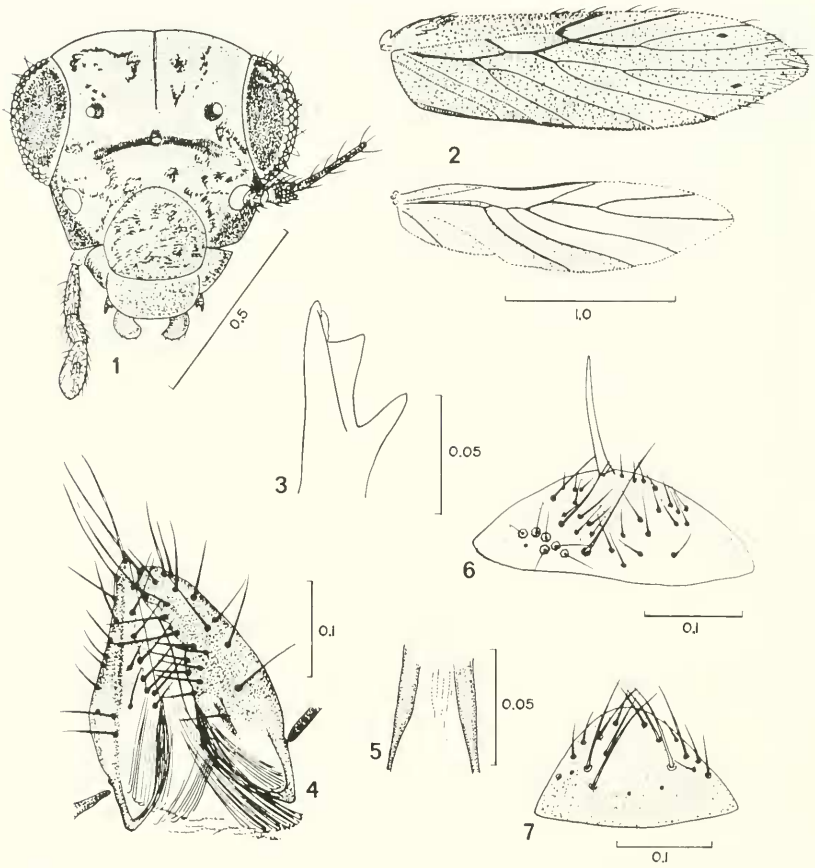
Type Locality. MEXICO. Campeche. Ca. Zoh–Laguna, 18°35'N, 89°25'W, 327m., next Calakmul Biosphere Reserve, 25.IX.1997, on surface of abandoned termite nest, holotype ♀, paratype ♀; Malaise trap, three paratypes (23-24.IX.1997), light trap, one paratype (23.IX.1997); beating shrubs with dead, hanging leaves, one paratype (23.IX.1997).

Comments. *N. campechensis* is the first species of its genus to be recorded in Mexico. The genus presently includes 20 described recent species, and a fossil one (*N. mortua* [Hagen], from Zanzibar), plus several undescribed ones, from peninsular Florida, Dominican Republic, Nicaragua and Ecuador. The genus is quite diverse in the Oriental-West Pacific region, where 14 species occur. The neotropics follow in species richness, with seven species; two species are known in Australia, and one species occurs in Africa (New 1975a, 1975b; Smithers 1967, 1992; Thornton 1981, Thornton, Lee & Chui 1972, Thornton & Woo 1973; Vaughan, Thornton & New 1989, 1991).

Most of the described species of *Nepticulomima* (18) are known from females only. The male sex is known only in the African *N. hosemanni* (Enderlein), and in the Australian *N. saltuaria* Smithers. Both males and females are quite homogeneous morphologically, and the species in the genus have been separated in the past by small wing venation features or by differences in facial pattern. The sclerite of the spermathecal duct varies inter species, and constitutes a good diagnostic character, but other than for *N. hosemanni*, it has not been described for other species (cf. Badonnel 1979,

Fig. 17). The pretarsal claw's pulvillus presents two character states: broad (in *N. orientalis* New, *N. pulvillata* New, *N. saltuaria* Smithers, and *N. scottiana* Enderlein), or slender, pointed (in undescribed species from Florida, Dominican Republic, Nicaragua, Ecuador, and in *N. campechensis)*; the character state is not known in the other described species.

N. campechensis differs from the Micronesians *N. bothriata* and *N. lineata* (Thornton, Lee & Chui 1972), by not having groups of sockets in the fore wing membrane. It differs from *N. orientalis* New, *N. pulvillata* New, *N. saltuaria*



Figures 1-7. *Nepticulomima campechensis* n. sp. (Female). 1. Front view of head. 2. Fore and hind wings. 3. Apex of right lacinia. 4. Gonapophyses. 5. Sclerite of spermathecal duct. 6. Left paraproct. 7. Epiproct. Scales in mm.

paraproct. 7. Epiproct. Scales in mm.

Smithers, and *N. scottiana* Enderlein, in having the pulvillus of the pretarsal claw slender and pointed, and from all the others (*N. biroiana* [Enderlein], *N. brasiliensis* [Enderlein], *N. cavagnaroi* Thornton & Woo, *N. chalcomelas* Enderlein, *N. essigkeana* Enderlein, *N. hosemanni* [Enderlein], *N. jacobsoni* Enderlein, *N. latisqueama* Enderlein, *N. lusiae* Thornton, *N. penicillata* Enderlein, *N. sakuntala* Enderlein, *N. sumatrensis* Vaughan, Thornton & New, *N. tridentata* Smithers, and *N. uniformis* Vaughan, Thornton & New), in the distinct facial pattern (Fig. 1), unique in the genus.

Amphientomidae

Seopsocus lacandonicus, NEW SPECIES

(Figs. 8-18)

Female. Color. (in 80% alcohol). Body reddish brown. Compound eyes black, with horizontal banding; head pattern as in Fig. 8, ocelli ringed in dark purplish brown. Scape and pedicel reddish brown; flagellum medium brown. Legs brown, coxae with ochre irregular spots, trochanters white, femora with ochre large areas on outer surface, tibiae distally with an ochre band, tarsomeres brown. Thoracic pleurae with an irregular ochre band next to coxae. Forewing (Fig. 9) medium brown, fumose, veins on distal half dark brown. Colorless marginal spots on cells R_1, R_3, R_5, M_1, M_2, and M_3. Hindwing (Fig. 9), almost hyaline, unmarked, with slight reddish brown wash, veins dark brown. Abdomen with ochre transverse bands. Subgenital plate, clunium, paraprocts, and epiproct medium brown.

Morphology. Epicranial sulcus well defined, without lateral arms. Ocelli close together. Lacinial tip as in Fig. 10. Fore femur with row of 20-22 pointed teeth along anterior carina (Fig. 12). Pretarsal claw as in Fig. 13. Wing venation normal for the genus. Subgenital plate (Fig. 18) broad, setose; T-shaped sclerite with stem long, curved; lateral arms short. Spermapore small, surrounded by an elliptical ring bearing a short, distal process (Fig. 15). Ovipositor valvulae as in Fig. 15. Paraproct elongate (Fig. 16), densely setose; sensory field not well defined, with 8-9 slender setae. Epiproct (Fig. 16), straight anteriorly, rounded posteriorly; setal field as illustrated.

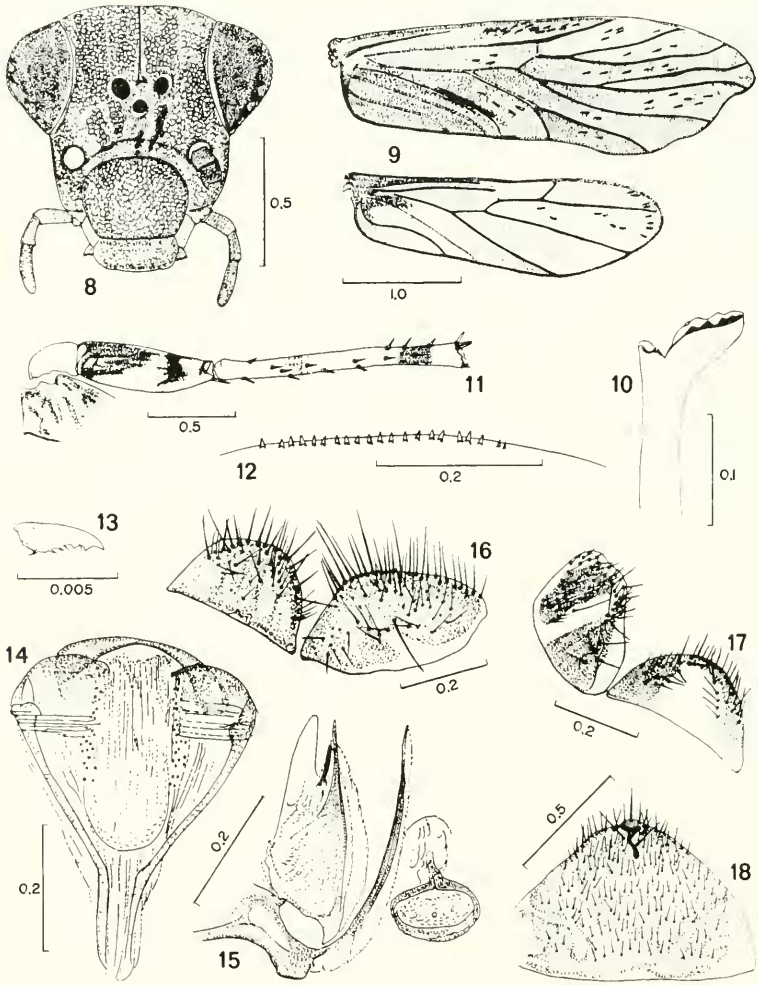
Measurements. FW: 3460, HW: 2747, F: 784, T: 1293, t_1: 763, t_2: 110, t_3: 141, ctt_1: 27, Mx4: 146, f_1: 284, f_2: 185, f_3: 204, f_4: 182, IO: 487, D: 403, d: 235, IO/D: 1.20, PO: 0.58.

Male. Color (in 80% alcohol). Same as the female.

Morphology. Epicranial sulcus, ocelli, row of teeth on fore femur and pretarsal claw as in the female. Hypandrium (not figured) broad, posteriorly rounded, setose. Phallosome (Fig. 14), Y shaped, lateral struts slender; distal end complex, with a distinct arch (fused inner lobes?), outer lobes basally wide, bending inwards to become continuous with inner membranous region, bearing numerous pores. Paraproct (Fig. 17) broad; setae and pigmented areas as illustrated; sensory field with four slender setae. Epiproct (Fig. 17), anteriorly straight, rounded posteriorly; setal field marginal, pigmented as illustrated.

Measurements. FW: 3620, HW: 2716, F: 771, T: 1338, t_1: 851, t_2: 115, t_3: 127, ctt_1: 32, Mx4: 175, f_1: 326, f_2: 259, f_3: 272, f_4: 249, f_5: 175, f_6: 168, f_7: 91, f_8: 101, IO: 500, D: 402, d: 246, IO/D: 1.24, PO: 0.61.

Type Locality. MEXICO. Chiapas. Biosphere Reserve "Montes Azules", Chajul Biology Station, 16°54'25"N; 92°05'46"W, 900m. Canopy fogging, holotype ♂, 25.VII.1994, allotype ♀, 27.VII.1994, paratype ♀, 29.VII.1995, paratype ♂, 25.VII.1994. J. G. Palacios et al.



Figures 8-18. *Seopsocus lacandonicus* n. sp. 8. Front view of head, male. 9. Fore and hind wings, male. 10. Apex of right lacinia, male. 11. Coxa, trochanter,femur and tibia of hind leg, male. 13. Pretarsal claw, male. 14. Phallosome, male. 15. Gonapophyses and spermapore sclerite, female. 16. Left paraproct and epiproct, female. 17. Right paraproct and epiproct, male. 18. Subgenital plate, female. Scales in mm.

Comments. *S. lacandonicus* is the seventh species described in the genus *Seopsocus* (if the Argentinian *S. annulipes* Badonnel,1962 described from a larva is accepted as valid); the five species described from adults are all Brazilian: *S. acuminatus* Roesler (1940) and *S. rotundatus* Roesler (1940), from Nova Teutonia, Santa Catarina, in SE Brazil, and *S. albiceps* Mockford (1991), *S. fasciatus* Mockford (1991), and *S. rafaeli* Mockford (1991), from Roraima, in NW Brazil. *S. lacandonicus* then occurs isolated from the general range of the other species in the genus, at the northern end of the neotropics. It differs from *S. albiceps* Mockford, *S. fasciatus* Mockford, *S. rafaeli* Mockford, and *S. rotundatus* Roesler, in having less teeth on the anterior carina of the front femora (20-22 versus 36, 35, 42, and 27-30 respectively). Besides, the distal arch of the phallosome is more robust in the former, and the base is broader in *S. fasciatus.*

The pigmented areas of the subgenital plates, the T shaped sclerites, and the spermapore sclerites in *S. lacandonicus* and in *S. albiceps* are clearly different; in addition, the former presents one apical macrosetae in the subgenital plate, versus two in the latter species. *S. lacandonicus* can also be separated from *S. rafaeli* in that the latter has a distinctive facial color pattern (compare Fig. 8 in this paper with Fig. 31 in Mockford 1991).

S. lacandonicus differs from *S. acuminatus* and from *S. rotundatus* in that the female is fully winged (the fore wing is pointed and the hind wing is micropterous in *S. acuminatus; S. rotundatus* is brachypterous). Besides, the facial patterns are different in *S. lacandonicus* and in *S. acuminatus* (see Fig. 8 in this paper and description of *S. acuminatus* in Roesler (1940).

Lachesillidae

Nadleria mariateresae García Aldrete

N. mariateresae García Aldrete 1996, p. 29.

This species was described from the southwestern edge of the Amazon Basin, in the Tambopata Reserved Zone, Peru. The three other species known in the genus, also occur in the Amazon Basin and one of them has been recorded in Trinidad (García Aldrete 1996).

One female specimen of *N. mariateresae* was collected by canopy fogging in the Lacandonian forest, Chiapas, Mexico (Biosphere Reserve "Montes Azules". Chajul Biological Station, 16°54'26"N, 92°05'46"W, 900m., 21.VII.1994), by the team conducted by José G. Palacios, of the Facultad de Ciencias, UNAM. The specimen was compared with females from Tambopata, Peru; the gonapophyses, the pigmented area of the ninth sternum, the subgenital plate, epiproct, paraprocts, as well as the wings and head are virtually identical in the Mexican specimen.

This record constitutes an extension of almost 30° to the north of the previously known distribution of the species.

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